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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,968	04/06/2001	Michael James Knee	87805-9022	9725

7590 04/14/2004

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EXAMINER	
TUCKER, WESLEY J	

ART UNIT	PAPER NUMBER
2623	9

DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,968	KNEE ET AL.	
	Examiner	Art Unit	
	Wes Tucker	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *1-4 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-10 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4, 5, and 6*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Election

1. Applicant's election without traverse of Group II of claims 5-12 in Paper no. 8 is acknowledged. Claims 1-4 of Group I are withdrawn from consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group I, there being no allowable generic or linking claim. Election was made without traverse in Paper No. 8.

This Office Action is in response to the election of Group II of claims 5-10 and 12. claim 11 depends from claim 1 and is therefore grouped with the non-elected Group I of claims 1-4 and 11. Claims 5-10 and 12 have been addressed below.

Specification

2. The following objections were made to the specification in the last restriction office action on 2 / 2 / 04 and correction has not been made. Appropriate correction is required.

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Applicant's specification lacks elements or headings for elements (b), (e), (f), (g), (h), and (j). Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 9 are rejected under 35 U.S.C. 112 as having a lack of antecedent basis.

Claim 8 recites the limitation "said function of quantization scale code" in claim 5. Claim 8 depends from claim 5 and "function of quantization scale code" is not listed in claim 5. Claim 7 lists "a function of quantization scale code." There is insufficient antecedent basis for this limitation in claim 9.

Claim 9 recites the limitation "said pre-defined quantization weighting matrix" in claim 5. Claim 9 depends from claim 5 and the limitation "pre-defined quantization weighting matrix" is not listed in claim 5. Claim 6 lists "a pre-determined quantization weighting matrix." Attention is directed to the fact that "pre-defined" is different than "pre-determined." There is insufficient antecedent basis for this limitation in claim 9.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,610,729 to Nakajima.

With regard to claim 5, Nakajima discloses a method for estimating the signal noise (Fig. 1, elements 12 and 13) of a picture signal decoded from a compressed bit-stream, comprising the steps of determining quantization values employed in said compression and deriving said estimate by processing said values (column 2, lines 20-30). Here noise is predicted from quantization step for the block and the coding mode. Nakajima dose not expressly disclose taking the predicted signal to noise ratio, however the noise is predicted as well as the noise free signal (column 2, lines 40-46). It is well known in the art that determining a signal to noise ratio is beneficial in determining how much noise should be removed. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to calculate a signal to noise ratio from the predicted signals of Nakajima's device in order to determine how much noise should be removed.

With regard to claim 6, Nakajima discloses a method according to claim 5, wherein a base noise prediction is taken as an experimental value of predicted signal noise employing the finest allowable quantization and a pre-determined quantization matrix (column 4, lines 40-50). Here Nakajima discloses block mean noise estimation tables or base signal to noise ratios are calculated using the minimum quantization step or the finest allowable quantization. The quantization matrix is considered to be pre-determined as the quantization steps are pre-determined. Nakajima does not expressly disclose the base ratio or signal to noise ratio as claimed. The discussion of claim 5

applies for interpreting predicted signal and predicted noise as predicted signal to noise ratio.

With regard to claim 7, Nakajima discloses a method according to claim 5, wherein said processing comprises the steps of forming a function of quantization scale code and modifying said function by a measure of picture activity (column 2, lines 30-40). Here noise prediction is performed for blocks by using information about activity in the blocks and the quantization of the blocks. It is understood that the function for performing noise prediction takes into account both quantization and picture activity.

With regard to claim 9, Nakajima discloses a method according to claim 5, wherein said function of quantization of scale code is modified to take into account deviations from said pre-defined quantization weighting matrix (column 5, lines 1-17). Here Nakajima discloses a method for determining a correction coefficient for correcting quantization step or scale code to compensate for weighted quantization steps or deviations from said pre-defined quantization matrix.

7. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,610,729 to Nakajima in view of U.S. Patent 6,023,296 to Lee et al.

With regard to claim 8, Nakajima discloses a method according to claim 5 and determining a quantization scale code. Nakajima does not expressly discloses the function of quantization scale code is a quadratic function. Lee discloses a quantization scale code determined with a quadratic function (column 10, lines 64-68 and column 11, lines 1-6). Nakajima and Lee are combinable because they both deal with quantization of video signals. Lee teaches that it is well known in the art to use regression models using quadratic equations. Lee uses quadratic regression models to find coefficients and update them to account for the discrepancy between the number of bits allocated for an object through quantization and the number of bits needed for that object. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use quadratic regression models to determine a function of quantization scale code.

With regard to claim 10, Nakajima discloses a method according to claim 7. Nakajima does not disclose wherein said picture activity utilizes the bit rate of the compressed bit-stream. Lee discloses using a bit rate Vi to calculate a quantization scale (column 10, lines 50-55). Vi is the target object bit rate (column 10, lines 5-10). Lee teaches that the bit rate is important in determining a quantizing scale for optimal throughput of video images. Vi is determined in relationship to buffer size and if the buffer is full and quantization rate also affects the throughput. So the bit rate is helpful in determining a reasonable quantization scale, which is a measure of picture activity as well as allocation of computer resources to produce the maximum efficiency of the

system. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the bit rate of the compressed bit stream to determine picture activity.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,610,729 to Nakajima as applied to claim 5 in view of U.S. Patent 5,675,385 to Sugiyama.

With regard to claim 12, Nakajima discloses a method according to claim 5. Nakajima does not disclose the method wherein a measure taken at an upstream location is passed forward for comparison with a measure taken at the device under test. Sugiyama discloses a transform coding device with evaluation of quantization under inverse transformation where obtained reproduced signals are compared with input signals by subtractors for error evaluation (column 5, lines 28-35). It is advantageous to compare signals at different points in a stream in order to check for information loss, speed, or throughput in order to evaluate for quality. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to compare signals at different points in a stream in order to evaluate for quality.

Prior Art

9. Other prior art considered relevant, but not relied upon is as follows:

U.S. Patent 6,243,497 to Chiang

U.S. Patent 6,360,020 to Panis

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 703-305-6700. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMELIA M. AU
SUPERVISORY PATENT EXAMINER
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Wes Tucker
4-5-2004